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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,955	10/06/2005	Bruno De La Nouvelle	2979-110	6154
6449	7590	12/26/2007		
ROTHWELL, FIGG, ERNST & MANBECK, P.C. 1425 K STREET, N.W. SUITE 800 WASHINGTON, DC 20005			EXAMINER PENDLETON, DIONNE	
			ART UNIT 2627	PAPER NUMBER
			NOTIFICATION DATE 12/26/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

## Office Action Summary

**Application No.**

10/551,955

**Applicant(s)**

DE LA NOUVELLE ET AL.

**Examiner**

Dionne H. Pendleton

**Art Unit**

2627

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Priority*

1. Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 2 and 4-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kam (2004/0037447)** in view of **Bertagni (Patent Application Publication US 2004/0129492)**

#### **Regarding claim 1,**

In **Figure 6**, Kam teaches a diaphragm for a loudspeaker, characterized in that such diaphragm comprises a core **142** consisting of structural foam cut with high precision and thermo molded to the geometric shape desired for the diaphragm, as is well understood in the art; In **paragraph [0039]**, Kam teaches that the exterior surface is covered with at least one, preferably a plurality of, "outer plies" **141** of woven or

nonwoven fibers impregnated with resin to form a laminate or "outer skin", The interior surface is covered or not covered with one or more woven or nonwoven "inner plies" **143** to form a laminate or "inner skin", as claimed.

Kam does not clearly teach that the foam core is selected from among the following: Plexiglass.TM. foam with closed cells of a density ranging from 30 to 100 kg/m.<sup>3</sup>, typically 50 kg/m.<sup>3</sup> PVC; (polyvinyl chloride) foam with closed cells of a density ranging from 50 to 200 kg/m.<sup>3</sup>; and polystyrene foam with closed cells of a density ranging from 15 to 40 kg/m.<sup>3</sup>.

However, In paragraph [0060], Bertagni teaches that it is well known in the art to select core materials for a diaphragm from one of: closed cell Plexiglass.TM. foam, PVC (polyvinyl chloride) foam and polystyrene foam. Per the disclosure of Bertagni, it would have been obvious to construct the diaphragm core of Kam from the specifically claimed materials, due to the ability of these materials to achieve a flat frequency response for the transducer over a wider frequency range.

**Regarding claim 2,**

Kam teaches in **Figure 6**, a diaphragm as specified in claim 1, wherein the woven or nonwoven fibers forming the inner and outer plies which are selected are among the following: glass fibers, carbon fibers, polyethylene fibers, aramides, and para-amides (Dyneema.TM., Spectra.TM., Kevlar.TM., Vectran.TM.) , *see paragraph [0039], line 11.*

**Regarding claim 4,**

Kam teaches that the impregnation resin chosen is one of the following: resins of the thermohardenable type: epoxy, polyester, vinylester, and phenolic ester thermoplastic resins: polyamide, polypropylene (see paragraph [0039]).

**Regarding claim 5,**

Kam teaches that use may be made of different fibers and different impregnation resins, or conversely identical ones, for producing the plies, or also one combination of fibers and resin may be employed for the inner plies and another combination for the outer plies, or the same combination may be employed (see paragraph [0039]) .

**Regarding claim 6,**

Kam teaches the diaphragm as specified in claim 5, wherein the same combination is employed (*in Figure 6, Kam teaches that the same combination  $\theta 1$ ,  $\theta 2$ ,  $\theta 3$ , are applied to either sides of core "142"*).

**Regarding claim 7,**

Kam teaches that the thicknesses of the inner and outer plies are modified by cutting the material in different thicknesses ranging from 1.5 mm to 4 mm (paragraph [0040]).

**Regarding claim 8,**

Kam teaches the diaphragm as specified in claim 1, wherein such diaphragm exhibits a sandwich structure selected from among the following: CWM-L or CWM-2P/M 1.5 1 inner ply of glass, foam core of a thickness of 1.5 mm 1 outer ply of glass CWM or CWM-3P/M 1.5 1 outer ply of glass, foam core of a thickness of 1.5 mm 2 inner plies of glass CWS-1P/M2 1 outer ply of glass foam core of a thickness of 2 mm CWS-1P/M3 1 outer ply of glass foam core of a thickness of 3 mm CWS-1P/M1.5 2 outer plies of glass foam core of a thickness of 1.5 mm *(in paragraph [0039], Kam teaches that the glass-fiber reinforced resin is use as inner and/or outer plies; in paragraph [0040], Kam teaches that the thickness of the core and/or inner and outer plies may be within the range of 0.2mm to 5mm; and in Figure 6, Kam teaches that the mounting arrangement may comprise up to 3 plies for either or both the inner and outer ply arrangement.)*

**Regarding claim 9,**

Kam teaches transducers having diameters which may vary from 48 cm to 10 cm *(in paragraph [0002], Kam teaches that the transducer is for use in a loudspeaker system such as a flat display, any variety of mobile communication devices, notebooks, PDAs, etc. Accordingly, a transducer dimensioned for use in a "notebook" will satisfy the 10-48cm diameter range, as recited in the claim.)*

**Regarding claims 10 and 11,**

Kam teaches The diaphragm as specified in claim 1 for a medium-range loudspeaker, wherein such diaphragm consists of a core of a thickness of 1.5 mm with an outer skin of 100 microns produced from two plies of glass 50 microns (*in paragraph [0040], Kam teaches up to four plies on the inner and outer core surfaces. Though Kam teaches a preferable symmetrical arrangement, Kam does not restrict thereto. In paragraph [0040], Kam teaches any combination of thicknesses for the outer and inner piles, as well as the core member as required, provided that the thickness of individual layers is in the range of 0.2 mm to 5mm, respectively.*)

**Regarding claim 11,**

Kam teaches the diaphragm as specified in claim 1 for a woofer 33 cm in diameter, wherein the thickness of the core is 3 mm with an inner skin of 3 plies of 50 microns and outer skin of two plies of 50 microns (*see the discussion of paragraph [0002] and paragraph [0040], as set forth in the rejection of claims 9 and 10, above*).

**Regarding claims 12 and 13,**

The combined disclosures of Kam and Bertagni teach a diaphragm as specified in claim 1. The combined disclosures fail to specifically teach a process for manufacture of the diaphragm, characterized in that such sandwich-structure material is polymerized either by compression between mold and counter mold or by vacuum

molding, at a temperature permitting polymerization of the resin and accordingly production of a mechanically uniform structure.

However, the Examiner takes *Official Notice* that the use of male/female compression plates, or heat molding processes are well known in the art of diaphragm manufacture, and would have been obvious for the purpose of easily producing a strong, light weight diaphragm, capable of being carried out in a process having minimal steps.

**Regarding claim 14,**

Kam teaches loudspeakers ("180" in figure 3b) for acoustic baffles ("160"), characterized in that such loudspeakers comprise a diaphragm as specified in claim 1.

**Regarding claim 15,**

Kam teaches acoustic baffles ("160" in figure 3b), characterized in that such acoustic baffles are provided with at least one loudspeaker as specified in claim 14.

**Regarding claim 16,**

Kam teaches the applications of diaphragms, loudspeakers, and acoustic baffles as specified in claim 1 for the reproduction of sounds, especially sounds of high or very high fidelity, for all private uses, in auditoriums, conference rooms, concert halls, automobiles and other land transportation vehicles, maritime or air transportation vehicles, and the like (*paragraph [0002]*).



***Response to Arguments***

3. Applicant's arguments with respect to the Non-final Rejection mailed 04/09/2007 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne H. Pendleton whose telephone number is 571-272-7497. The examiner can normally be reached on 10:30-7:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on 571-272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*D. Pendleton*  
D. Pendleton

*Thang Tran*  
THANG V. TRAN  
PRIMARY EXAMINER